

SUBJECTIVE CULTURE AND ECONOMIC DEVELOPMENT¹

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L'examen critique de la littérature traitant du développement économique, de ses causes et conséquences, des variables psychologiques qui l'induisent ou le favorisent, fait apparaître la modernisation comme un phénomène complexe dont la mesure se révèle malaisée. On peut certes identifier une dimension psychologique universelle, cognitive et motivationnelle — le modernisme — qu'il est possible de mesurer au moyen d'une échelle appropriée. Mais se limiter à ce point de vue conduirait inmanquablement à méconnaître la complexification imposée à cet état psychologique par la culture, le milieu, etc. C'est pourquoi, des mesures de variables composant la culture subjective peuvent fournir des indices supplémentaires, susceptibles d'éclairer le ou les processus de modernisation et de clarifier les relations entre ce phénomène, les facteurs qui le conditionnent et les conséquences qu'il entraîne. On voit dès lors l'intérêt que présente ce type d'analyse pour des problèmes tels que celui de la planification optimale de la vitesse de modernisation ou encore celui des relations entre modernisation et hygiène mentale.

One of the critical problems of our time is the gap in the economic development among nations. The subjective culture of groups of people, that is, the characteristic way in which people perceive their social environment, may have inhibiting effects on economic development. At the same time, economic development has consequences which are undesirable; for example, pollution, excessive rates of social change, deindividuation, social disorganization, etc. It is essential, then, that we study the relationships between subjective culture and economic development on the one hand and economic development and subjective culture on the other hand. The papers to be presented below focus on certain aspects of the general area outlined above.

One critical variable in economic development is the formation of institutions, points of view, behavior patterns and problem-solving strategies which help a community in reaching its goals. The study of perceptions and conceptions that members of a community have concerning roles, expectancies of reinforcement, and the relationship between roles and expectancies should lead to a better understanding of the psychological determinants of economic development.

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In order to suggest some of the ways in which subjective culture can influence economic development, a few examples will be presented. In the more developed environments people acquire a high level of ability in estimating the time it takes to complete jobs. They often perform their jobs without unnecessary motions and without duplication. They have work relations with others which are formal (predictable) yet pleasant. This is not usually the case in less developed countries. For example, in the Middle East one doesn't do business until he establishes a friendly relationship with the other person. This requires sharing food, the exchanges of pleasantries and gossip, before getting down to business. All that takes time and therefore the transaction of business is more time consuming. At the same time, however, business can be very pleasant because there is such a significant social component in the activity. What we have then is a more businesslike relationship in the developed settings and more socializing in the less-developed settings. We have a situation in which the developed perform their job quickly, but do not generally derive as much satisfaction out of doing it than is the case with the less developed. In fact, some of the work environments of the developed, such as an assembly line, have been empirically found to produce high levels of dissatisfaction (Walker and Guest, 1952). These jobs (Friedmann, 1961) are unpleasant and dehumanizing. They require such low levels of competence, that there are few jobs in underdeveloped settings that are as unsatisfactory, yet from the point of view of economics, the assembly line is a great success.

While *efficiency* is a key value in the developed countries, *enthusiasm* is a great value in some of the less developed. For example, in Greece an employee who is enthusiastic and loyal is a good employee. He may be most inefficient, but this is not really that important. One way of explaining such differences is to consider that the more developed emphasize achievement on the basis of meeting particular standards whereas the less developed emphasize the effort that a person puts into his job. So that, for example, if a student works very hard but because of inadequate intelligence he is not able to perform very well, he may still receive high grades in the less-developed environments where he is responded to *particularistically*; that is, as an individual in a unique way. Whereas, in the more developed environments the response is *universalistic*; that is, there are certain standards and if he meets the standards he passes, if he does not meet the standards he does not.

In an environment that is relatively stable, people will find that planning is a relatively rewarding activity; in an environment where war and natural catastrophes are very common, planning is almost never reinforced, hence it does not become an established habit at the individual level and a norm or custom at the cultural level. Corresponding values do not develop. Cultures develop customs and values just as individuals develop habits and attitudes. Rapidly changing environments, however, cause exceptional difficulties because the customs of yesterday may be dysfunctional for the environment of today.

Consider another example. In traditional societies people look at the world with the assumption that *good* is limited (Foster, 1965). Life is a zero-sum game, so that if your neighbor gets something good, he somehow must have taken it away from you. This is clearly understandable in agricultural settings. If good comes from the soil, and there is only a certain finite amount of good soil, if

someone gets hold of an extra piece of ground, he is depriving another of access to the same place. The consequences of this view are many. First, people divide other people in their environment into two groups : (a) those with whom one shares one's fortune, and (b) the rest of the members of a society. The former are members of an *ingroup* within which people cooperate and behave with self-sacrifice. The ingroup typically includes the extended family, a few friends, and others who are concerned with one's welfare. The latter are members of the *outgroup* and one behaves toward them in a competitive, suspicious, and even a hostile manner. Second, if an authority figure is a member of the ingroup, one submits to it without questioning. If the authority is an outgroup member, one does as little as possible, is uncooperative and negativistic, and likely to withhold useful information (Triandis and Vassiliou, 1972).

Fiedler (1967), in his contingency model of leadership effectiveness, described the conditions under which a leader should be bossy if he is to be effective. He showed that when the leadership situation is very easy for the leader — as it happens when he is loved by his followers, he can tell them precisely what to do and he has great power — the leader is more effective if he is bossy. When the situation is very bad for the leader — as happens when he is hated by his followers, he does not know how to direct them, because the task is unstructured, and he has little power — then again it is good for the leader to be bossy. On the other hand, in situations which are intermediate in difficulty — as, for example, when the leader is hated but he knows exactly what is to be done, or, when he is loved and does not know what is to be done — it is best if the leader is participative. In Greece, leadership situations are either very good, when the leader is an ingroup member, or very bad, when the leader is an outgroup member; rarely are the situations intermediate in difficulty. It so happens that the norm in that culture is that a boss must be bossy. Note that the culture has developed a norm of leader behavior which is most appropriate for leaders, given the subjective culture of leaders and followers in that setting. On the other hand, in the United States and many developed nations, participation is a value, and a bossy boss is considered undesirable. The implication is clear : In most cases the Greek style is dysfunctional in the United States, and the American style is dysfunctional in Greece.

To understand what is meant by dysfunctional, consider a specific true example, from the file of George Vassiliou, a psychiatrist who has studied Greek-American interpersonal relations for more than a decade. The American boss asks : " When will this report be ready ? " (Note : He asks the employee to participate.) The Greek employee says : " I do not know. How long do you think it will take ? " (Note : He says, you are the boss, tell me !) The American is adamant. The Greek finally guesses : " 10 days ". The American knows the report will take longer, so he gives him 15 days. Soon the Greek discovers that the report will take a lot more time than he had thought. In fact, under normal working conditions it would take 30 days. So he works day and night to meet the deadline (Note : He does not go to the boss to tell him that he was wrong in estimating the time.) Finally, the 15th day comes and it is about to end (5 o'clock) and the American boss calls the Greek in and asks : " Where is the report ? " The Greek beams : " It will be ready tomorrow. " The American is critical : " You said it would be ready in 15 days, you should have it ready now. " At this point the Greek hands

in his resignation; he is completely furious. Not only did his boss give him the wrong orders (to do the report in 15 days), but he did not appreciate that he was working day and night to finish it. Hence for the Greek the boss is an ungrateful member of the outgroup! The American is astonished. Why did the Greek resign, after such mild criticism? Note, the assumptions that everyone is working with: The Greek assumes the boss to be bossy, and the estimate of 15 days to be the boss's orders. The American assumes participation, and the Greek's response of 10 days as a more or less accurate estimate of the time needed to do the job. The miscommunication is total and the results dramatic.

We have here a classic intercultural communication breakdown which can occur again and again in developing countries when the perspectives of individuals trained in the West clash with the perspectives of traditional individuals. An Indian who has been trained at Oxford, for example, and who lived in England for many years might have acquired enough of the characteristics of Western individuals to expect his subordinates to behave in the same way he has seen British employees behave. When he finds his Indian traditional employees unable to estimate the time to complete jobs, etc., he gets discouraged. Thus, it is possible to find difficulties in coordination and communication even in situations which occur within the *same* culture when one person has acquired a subjective culture that is inconsistent with traditional culture.

In traditional societies people are trained and socialized to pay attention to face-to-face relations with ingroup members and have very little ability to cope with bureaucratic concepts. The result is that they are very effective in small organizations, but are ineffective in large organizations. However, it is difficult to have efficient industrial enterprises when only members of the ingroup cooperate. For efficient operation it is desirable to be able to have a broad ingroup (Triandis and Triandis, 1969).

In short, certain characteristics of traditional societies, such as the small ingroup, are dysfunctional from the point of view of large industrial enterprises. Yet the large industrialized environments, particularly the urban industrial environments, also have very significant dysfunctional aspects, such as high pollution rates, social disorganization and crime, levels of aspiration that are much too high relative to how much one can accomplish and therefore low levels of satisfaction. Anomic responses (Seeman, 1971), and deindividuation (Zimbardo, 1969) are common. Furthermore, in industrialized environments we find problems of identity and a difficulty in maintaining a high self-esteem. By contrast, the ingroup of a person defines most precisely who he is and the maintenance of a high self-esteem is relatively easy (Long *et al.*, 1967) because the individual validates himself against people who are very similar to himself and with whom he has very close relationships. In the ingroup it is relatively easy to be appreciated. One's self-esteem builds up very quickly as one discovers that other people find him a valuable member of their ingroup (Ziller *et al.*, 1968). By contrast, in a large urban environment the individual may not know who he really is and he may not feel very valuable; he may feel just like a cog in a machine, expendable and of no consequence as an individual. The result may be a breakdown or a socially dysfunctional response.

Modernization is a complex phenomenon. One definition utilizes the percent of total energy which comes from humans, in a particular environment. In the

less-developed countries about 10 to 20 percent of all energy comes from humans, about half the energy comes from animals and the rest from inanimate sources. In 1970, in the U.S., about 99.9 % of all power was from inanimate sources (*Statistical Abstracts of the United States*, 1970). Similar percentages may be found in Western Europe and Japan. Hence, one definition of development is that a society is developed when 99 % or more of all power is from inanimate sources. However, there are probably several kinds of final states that might be called modern. As we develop our understanding of development we should be able to distinguish among such states. As psychologists, we are in an unusually good position to develop indices of positive mental health that are relevant to the problem of modernization and examine how different kinds of modernization affect different individuals. We can also, through our considerable experience with studies of socialization and training, provide information on the *rates* of modernization which are optimal, and on the *patterns* of training which are likely to lead to particular types of modernization which are functional for most individuals and which are likely to lead to positive mental health. It is likely that we can do this best with the help of anthropologists and in cooperation with psychologists of various cultural backgrounds, so that finally we can arrive at a general theory of modernization which will prescribe an appropriate rate and type of modernization consistent with "good" mental health. Studies of subjective culture can make a contribution in this general area. To understand how subjective culture is relevant to these issues, it is first necessary to examine some of the key issues concerning the psychological dimensions of modernization.

WHAT DOES MODERNITY MEAN ?

There is a considerable literature which suggests that, in highly developed countries, many people have a perspective which is different from the perspectives of people in less developed countries with respect to a number of important social relations and perceptions of the social environment. In particular, there is reason to believe that in modern environments there is a greater emphasis on the nuclear family (as opposed to the extended family); on egalitarian relationships between the sexes; on status based on achievement which meets particular standards (as opposed to status on the basis of birth or other ascriptive characteristics); on specialization of function in economic activities; on communication through the mass media; on a passive relationship between entertainer and person being entertained (as opposed to an active involvement in entertainment situations); on greater concern with individualism (rather than with doing what is prescribed by authority figures or by social groups); and finally, there is less concern with religious traditions and generally greater secularism.

This paper will first review some studies which measure the psychological dimensions of modernization. This review will suggest that there are several unsolved problems that remain to be studied, and that psychologists are uniquely equipped to study these problems. Second, it will discuss some of the major antecedents and consequents of modernization, and suggest the types of studies that are needed to understand more clearly the relationships between these

antecedent variables and modernization on the one hand and some consequent variables on the other.

UNIDIMENSIONAL APPROACHES

A major assumption in the work done by many social scientists, so far, is that modernity is a single dimension. We find, for example, in the work of Inkeles (1969), with a sample of 6,000 persons from six diverse countries, such as Argentina, Chile, India, Israel, Nigeria, and East Pakistan, a conception of modernization along a single dimension. He found a pattern of values and attitudes which he described as involving, among other things, (a) openness to new experience, (b) independence from parental authority, (c) involvement in civic affairs, and (d) concern with time (characterized by being on time, planning and keeping up with the news). He argued that these qualities are present across occupations, urban-rural breakdowns of the samples, and several other variables. His major thesis is that there is evidence for the psychic unity of mankind, because modern man has a number of characteristics in common, no matter where he is studied. Smith and Inkeles (1966) have published a scale of individual modernity, which asks the person such questions as "Do you read a newspaper?" and obtains responses on the frequency or likelihood of events (daily, weekly, monthly, etc.).

Doob (1967) surveyed substantial numbers of Africans to measure psychological modernization. Here is a typical item from his survey, which gives a person a high modernization score if he agrees: "Worthwhile goals are never obtained immediately, you must work hard to reach them in the future." The item stresses deferred gratification, which is essential for success in a modern society. Doob's scale focuses on the following: (a) time-emphasis on the future; (b) positive attitude toward government activities; (c) sense of optimism and control over one's destiny; (d) patriotism; (e) belief in determinism and scientific knowledge; (f) a trusting conception of people; (g) a positive attitude toward the leaders of the country; and (h) a de-emphasis of traditional beliefs.

There is a core of agreement among those who have studied the psychological correlates of modernization. One can find a number of areas of agreement, for instance, between Inkeles and Doob. However, reviews of the literature, such as McKendry, McKendry and Guthrie (1967) show a variety of points of view concerning *which* elements in the total modernization syndrome are most fundamental and most important. One view, for instance, is that existing social norms and reinforcement contingencies prevent modernization, in spite of the existence of positive attitudes (Guthrie, 1970). Another view stresses the individual's breadth of perspective, in time and place, and claims that modernity means, among other things, having a cosmopolitan perspective (Rogers, 1962). Still another (Foster, 1965) argues that in traditional societies life is seen as a stochastic zero-sum game guided by chance; that is, there is the view of limited good, and the notion that chance or fate is the major determiner of one's share of this good. Another emphasis is on the value orientation which Kluckhohn and Strodtbeck (1961) described as man's mastery over nature, accompanied with a sense of potency that the individual is in fact able to control his reinforcements from the environment. This suggests Rotter's (1966) generalized expectancies for internal

versus external control of reinforcement. The internals believe that what they *do* controls the probability that they will be reinforced, while the externals consider external factors, such as luck or fate, to be primarily responsible for the determination of the probability of reinforcement. Perhaps it is a central characteristic of modern man that he is likely to perceive more internal than external control of reinforcement.

McClelland (1961) presented the argument that the large differences in per capita income that characterize various regions of the world are primarily due to differences in the need for achievement that characterize those who inhabit these regions. The argument is rather complex, and here we can only present it in an oversimplified form. Basically, McClelland argues that high self-reliance training of the child and high achievement standards used by the mother lead to a personality type characterized by high need achievement. Winterbottom (1950) showed that mothers of high need achievement boys make early demands on them, for instance, expect them to learn to put their clothes on by themselves at an earlier age, expect greater accomplishment and also reward accomplishment more frequently than mothers of boys who are low in need achievement. Those high in need achievement, according to McClelland, work harder, choose experts over friends as work partners, are more resistant to social pressures, and are more apt to compete with a standard of excellence than are those low in need achievement.

He presents data on the distribution of need achievement in different parts of the world, and at different historical times, which are consistent with his argument that need achievement is a mediating variable in economic development. He finds high need achievement in societies which are less tradition directed, where the authority of the father has been challenged, and where childrearing practices are warm, but firm and demanding of excellence. He argues that those high in need achievement are characterized by willingness to take reasonable risks, individual responsibility, and willingness to delay immediate gratification.

A number of American studies (*e.g.*, Rosen and D'Andrade, 1959; Littig and Yeracaris, 1965) have supported McClelland's contentions and several cross-cultural studies (*e.g.*, Danziger, 1960; Le Vine, 1966; Rogers and Neill, 1966) are also supportive. Pareek (1968) proposed that economic development requires persons who are high in the need for achievement and the need for extension and low in the need for dependence. Need for extension is characterized by concern for the common good, or concern for others. Need for dependence reflects a need for guidance and direction by other people. People high in this need avoid taking initiatives, find arguing with others most unpleasant, and look for others to supply leadership.

MULTIDIMENSIONAL APPROACHES

In the above points of view modernity is seen as a unidimensional construct. People are very high, high, intermediate, low, or very low on modernity. By contrast some writers have adopted a multidimensional perspective.

The papers by Schnaiberg (1970) and Wober (1971) urge modifications in our unidimensional thinking. The major point in Schnaiberg's paper is based

on a study of 803 wives, from Ankara, Turkey and four Turkish villages. He found, through factor analysis, a four-dimensional structure in the modernization questions he asked these women. His first and most important factor was a sort of *g*-factor, that represented all areas of modernization. He called it *emancipation*. This factor probably corresponds to the dimension employed by the unidimensional theorists. A second factor reflected modernization in economic activities, such as *not* growing one's own tomatoes and making tomato paste, but rather buying it in the store. The third factor was concerned with greater emphasis on the nuclear rather than the extended family, with additional overtones emphasizing the view that husbands should do some of the housework. The fourth factor suggested considerable emphasis on the mass media, *i.e.*, that the women were to read newspapers, magazines, and watch television, but it also had weak loadings on other aspects of the total modernization syndrome.

COMMENTS ON DIMENSIONALITY

The argument about unidimensional or multidimensional measures of modernization is very much like the argument concerning the nature of intelligence. The Spearman versus Thurstone controversy was more or less parallel to the one just described. The truth probably lies somewhere in the middle; namely, that there is a very powerful and significant first factor which correlates with non-orthogonal rotations of other factors. In short, if you have an oblique rotation you get correlations or around .3 between each of the factors of modernization and the general factor. But, nevertheless, there is a general factor which can be considered the most important, so that Inkeles and others who have dealt with only a single factor have captured that most important aspect of modernization. Nevertheless if you want to do adequate work, and describe most of the variance, then you want to *add* factors and some of these factors are not going to be universal, but rather will be culture-specific; that is, they will be specific manifestations of the modernization syndrome which interact with cultural variables and produce unique solutions to the modernization of particular social groups. A culture-specific approach to the measurement of modernization can be seen in the work of Dawson.

Dawson (1963, 1967, 1969 b) examined traditional versus Western attitudes in samples from Africa, Asia, and Australia. He used a culture-specific Likert-type scale in each of these cultures with several types of attitudes, such as attitudes toward parental authority, ethical obligations, the giving of gifts, etc. He scored his data so as to obtain four sub-scales which he labeled Traditional, Semi-Traditional, Semi-Western and Western. He showed good validities, with Western samples high on the Western and low on the Traditional scales, and other samples, of known modernity, showing corresponding patterns.

Dawson (1963) sampled several African tribes and examined the work effectiveness of members of these tribes in various industrial and mining environments. He found that the more traditional the attitudes of the tribesmen, the *less* likely they were to be considered effective workers, and the *more* likely they were to quit their jobs. In fact, some tribes do not even attempt to gain employment in industrial enterprises, since they find such activities beneath their dignity. Typi-

cally, Dawson's subjects developed cognitive compartmentalization; that is, they allowed logically inconsistent ideas to co-exist. In such cases their scores were highest on the Semi-Traditional or Semi-Western scales.

It is clear that Dawson's culture-specific multi-factor approach is quite different from Inkeles' culture-general, single dimensional approach. It may be desirable to employ both approaches simultaneously because Inkeles' approach permits cross-cultural comparisons, while Dawson's is most helpful within culture.

At any rate, there is now in the literature a set of measures and methods of scale construction which are suitable for the measurement of modernity.

ANTECEDENTS OF MODERNIZATION

One of the interesting aspects of the whole area of modernization is the fact that (a) education and (b) urbanism are the two most important *antecedents* of modernization. Both Dawson and Inkeles found that the amount of education received by a person is the best predictor of his modernity. For example, Inkeles reports that every year of schooling raises a person's modernity score by about three points on a 100-point scale. The question is "Why?" One possible explanation is that modernization is associated with greater complexity in looking at the environment.

One suggestion is that education and urban environments have the effect of producing greater cognitive complexity. What people do in educational establishments most of the time, is that they define new words which provide new categories for thinking about issues. They discover relationships and new ways of integrating the information. So education increases the cognitive complexity of individuals. Similarly, urban environments are more complex, with more *types* of people, more *types* of activities and, therefore, one needs to be cognitively complex to adjust to them.

The strong emphasis on complexity, as the basic index of modernization, can be found in an extensive study by Lomax and Berkowitz (1972). They analysed extensive data from both Murdock's (1967) *Ethnographic Atlas* and from studies relating expressive style to social norms (Lomax, 1968). Through factor analyses they determined three major dimensions of culture, the most important of which was *differentiation*, indexed by variables such as the extent of social stratification, the size of settlement, the intensity of agriculture, and the presence of games of strategy. The second most important dimension, *communication*, was indexed by complexity indices in communication styles, such as the use of much embellishment in song and dance styles. The third factor was *integration*, reflecting variables such as division of labor, and solidarity (close and interdependent social relationships). Integration implies the presence of clear social patterns that can only develop after social units have been differentiated and roles have been defined. All cultures can be placed on these three dimensions. For example, African gatherers received a differentiation index of 1.6, while the old high cultures, extending from the Mediterranean to Japan, received an index of 8.0.

It seems reasonable that isomorphically to this increased differentiation of cultures there will be increased cognitive differentiations necessary to function

in the more complex cultural environments. Hence it is reasonable to suggest that we study cognitive complexity as a means of analyzing the psychological problems of modernization.

COGNITIVE COMPLEXITY AND MODERNIZATION

It is very clear that modernization involves significant changes in our view of interpersonal relationships. We need a theoretical framework to analyze such changes. This can be done if we follow Foa's (1971) analysis of interpersonal exchanges and consider how cognitive complexity becomes modified with respect to such exchanges. But first, a summary of some of the main points made by Foa will be presented.

Foa proposed that, universally, there are six kinds of interpersonal exchanges: First, a person may exchange *love* with another person; for example, he can love or be loved. Second, he may exchange *status*; a person might give status or a compliment to another person or receive status from another person. Third, he may exchange *services*; for example, a person might receive medical attention or give advice on personal hygiene. These three exchanges are particularistic; that is, they require that you know something about the individual that you are exchanging with in order to be optimal in your exchange. There are three other kinds of exchanges which are *less* particularistic and can be universalistic. These include exchanging *information*, such as occurs over the radio or exchanging *money*, such as occurs in a stock exchange; or exchanging *goods*, for example, selling or buying goods. These exchanges are much less dependent on knowing who you are dealing with and it is possible to have massive exchanges, where you sell a million copies of something to a million people that you have never seen. In sum, what we have here is a contrast between particularistic and universalistic exchanges.

Now the argument of the present writer is that the universalistic exchanges typically involve more differentiation in the modern environment; for example, in a modern environment we exchange money in all kinds of forms. We exchange dollars, or pounds, or francs, or securities, or bonds, or stock, or futures, or insurance certificates, etc., etc.; that is, there are thousands of ways in which we can exchange money. All of these are different from each other, therefore, a person cannot behave effectively in a modern financial environment unless he can discriminate among these forms of monetary exchange. In other words, he has to be cognitively much more complex in the domain of money and he has to have special education in order to be effective. This is not true in a less-modern environment where these kinds of concepts may simply not exist or, if they exist, they may have very little consequence for the individual.

In short, this analysis tells us that when a person is not sufficiently differentiated in one of the universalistic forms of exchange that are needed for effective interaction in a modern culture, this person is less likely to be effective in that environment. Similarly, if a culture does not have a sufficiently developed differentiation in an exchange that is important for effective behavior in economically developed settings, this culture has characteristics which *inhibit* economic develop-

ment. Conversely, some traditional cultures may have developed much differentiation in these exchanges and these cultures will find it easier to develop.

The analysis also tells us what kinds of education and/or training to provide. When we see insufficient differentiation in a *particular* exchange, this immediately suggests the need for training in that particular domain. Such training can occur either in the early socialization period, by having families adopt procedures which provide such training, or in schools. For example, a highly differentiated status system is typical of large economic enterprises (Dawson, 1971). If a culture does not provide enough training in the use of such differentiations, this could be done either in the family (where a clearer differentiation of status between father, mother, older son, etc., might be established) or in schools. It should be stressed, however, that modernity does not imply complexity in all modes of exchange. For example, it seems unlikely that differentiation in love exchanges is greater in modern environments than it is in traditional environments. In fact, it may be more complex in traditional environments than it is in modern environments. One of the reasons for suspecting that, is that the exchange of love requires time and when you have more time you can differentiate and discriminate and become more cognitively complex about that particular kind of exchange. The differentiation of sexual positions in the 2,000-year old Indian temples suggests considerable complexity in that domain! It seems reasonable to hypothesize a limit in the amount of differentiation capability of humans. If our differentiation capability is finite when we differentiate much in one domain, this implies differentiating less in another. One of the important differences between the modern and the less developed environments is that in the less developed, people are more differentiated in particularistic exchanges and less differentiated in universalistic exchanges while the obverse is true in the more developed.

COMPONENTS OF COGNITIVE COMPLEXITY

While discussing cognitive complexity, about particular domains, it is useful to consider some further distinctions. Schroder, Driver and Streufert (1967) have distinguished *differentiation*, *discrimination*, and *integration*. Differentiation is the use of a greater number of dimensions in thinking about a particular domain, discrimination is the finer use of each dimension, dividing it into more discriminable ranges; integration is the interrelation among the dimensions. Thus when a person is integrated, he not only is differentiated but he has characteristic patterns of association of the differentiated dimensions.

Some individuals differentiate, but they do not discriminate or integrate; others differentiate and discriminate, and still others differentiate and integrate. The latter group is cognitively most complex.

Consider again the example of *differentiation* in the area of status. We observed that in modern organizations there is an extreme status differentiation. For example, we differentiate status by education, income, ethnicity, residence, age, sex, memberships in exclusive organizations, prizes, awards, and so on. This is a very subtle system of differentiation which does not exist in many traditional societies. It is clear that in modern industrialized societies one must have considerable ability to differentiate on the status mode in order to get along. This is not

necessarily the case in, say, fishing and gathering societies where status differentiation is relatively small. Dawson (1971) proposed a theory of economic development which classifies societies from hunting and fishing, such as the Australian aborigines and the Eskimo on the one hand, through pastoral societies such as the Masai, through agricultural such as the Temne and Mende, to modern industrial societies. Since there is more status differentiation in the latter than in the former, he argues that the agricultural have greater susceptibility to industrialization and modern change than the fishing and hunting. Dawson also suggests high differentiation of levels is related to more severe forms of socialization; that is, the child has to learn to conform to more complex norms and roles and to greater pressures for achievement which result in higher levels of need achievement, hence, to a greater potential for economic development. An updated version of his theory appears in his paper in the present issue.

A completely different example, in the area of *discrimination*, concerns discrimination on the dimension of *time*. Some people have a highly subdivided dimension, and view the way they spend their time in units of quarter-hours (*e.g.*, appointments lasting 15 minutes) and others view time in relatively gross units of days or even longer. Obviously the former level of discrimination is more suitable for an individual who does a variety of different tasks; the latter type may be perfectly suitable in a relatively simple environment, where repetitive tasks of an agricultural or food gathering nature are typical.

A related concept, suggesting *integration* along the time dimension, is the degree of time perspective present in a person's thinking. At one end we have individuals who consider the historical consequents of their actions, and who may argue "If I do X, 100 years from now people will think that I did the right thing." By contrast, some individuals utilize extremely short time perspectives. We note, for example, in children, how easy it is to distract them, which suggests that their actions are not integrated over time. Many more examples of differentiation and integration, involving each of the exchanges in the Foa system, or other dimensions of importance in human affairs, could be presented.

PART SUMMARY

Modernization is a relatively complex phenomenon, which can be measured, in an imprecise but useful way with a single universal scale. Additional, culture-specific scales may be needed to provide adequate measurement. A major antecedent is education and a major correlate is greater complexity in looking at the world. Cognitive complexity is likely to be relevant in understanding modernization and in measuring it more precisely.

SUBJECTIVE CULTURE AND MODERNIZATION

In social psychophysics, we have an excellent battery of procedures which can help us measure complexity in different kinds of cognitive domains, and hence, obtain better measures of modernization. Such specific measures of modernization will be more useful than previous more global measures because

they will allow for a careful analysis of the covariation of modernity and cognitive complexity in specific cognitive domains. Such studies will determine what particular educational and socialization experiences are likely to help economic development. In short, instead of simply describing the psychological effects of modernization and vaguely stating that education leads to modernity, by sharpening our tools, we will be in a position to specify *what* particular kinds of socialization and educational experiences lead to *what* particular types of cognitive complexity associated with particular forms of modernity.

In order to describe how social psychophysics can be used to accomplish these tasks, a brief discussion of the concept of subjective culture and the measurement of some of the key variables included in this concept will now be presented. By subjective culture, Triandis, Vassiliou, Tanaka and Shanmugan (1972) mean a cultural group's characteristic way of perceiving its social environment. Among the key concepts for the analysis of subjective culture are attitudes, roles, norms, and values. Figure 1 presents one of the figures from this book. This figure

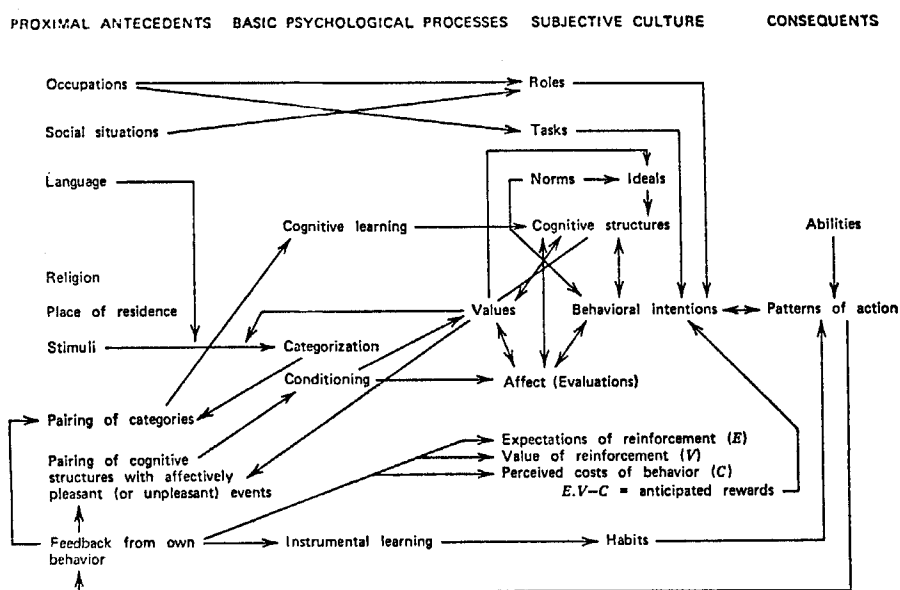


FIG. 1. — The antecedents and consequents of subjective culture.

(From Triandis *et al.*, *The analysis of subjective culture* (New York : Wiley, 1972, p. 23) with permission of the authors and publisher.)

suggests the major interrelationships among the variables that are included in the concept of subjective culture. In the book there are specific procedures which

are adaptations of social psychophysics, for the cross-culturally equivalent measurement of each of these concepts.

The model begins with patterns of action (middle-right part of the page) which are determined by levels of ability, habits, and behavioral intentions. Habits are due to instrumental learning. Behavioral intentions are due to cognitive structures associating events with each other. Of particular importance are expectancies of reinforcement and the subjective value of these reinforcements. In addition, behavioral intentions are due to norms, roles, tasks, and the affect associated with doing a behavior. Such affect depends on the previous frequent pairing of the behavior with pleasant and unpleasant events, following the laws of classical conditioning. Other parts of the diagram are discussed in Triandis *et al.* (1972). The major point is that each of the concepts mentioned above can be related to every other concept through a set of regression equations. One can write, for instance, that Behavior is a function of Habits, Abilities, and Behavioral Intentions. The beta weights associated with Habits, Abilities, and Behavioral Intentions will depend on four parameters: (a) the culture of the subject, (b) the behavior setting (see Barker and Wright, 1951), (c) the type of behavior, and (d) the personality of the subject. Similarly, we can write that Behavioral Intentions are a function of the perceived rewards, Norms, Roles, Tasks, and Affect. Again, the four parameters may determine the size of the weights. For example, traditional, simple individuals employ larger weights for the Norms and Roles than for the Cognition (perceived consequences) and Affect component of the second regression equation. In certain cultures certain behaviors may be under normative control; in others there may be no norms relevant to these behaviors. Certain behavioral settings increase the probability of some behaviors (for instance *praying* in church) and inhibit other behaviors (for example *laughing* in church). Cognitive complexity probably leads to more of the terms of the equations having non-zero beta weights.

If we measure each of the major components of subjective culture in environments that are currently at different levels of modernization, and study the relationships shown in the diagram, we will probably have a better map of modernity than has been obtained so far. For example, each of the Foa exchanges, discussed earlier, is an *aspect* of behavioral intentions. We can examine the complexity of such exchanges by studying the number of dimensions needed to perceive a sample of behavior included in each exchange (differentiation); the extent to which different behaviors are categorized on each dimension in a relatively gross or subtle way (discrimination) and the size of the interrelationships among these dimensions (integration).

With this type of information in hand we would be in an excellent position to assess the types of training that are needed to improve the probabilities that particular cultures can accelerate in economic development.

It should be clear that the model advocated here does *not* imply that each culture will become like every other culture. On the contrary, there is the possibility of each culture developing its own form of modernization, which maintains some of the elements of subjective culture which are highly valued in that culture, and which do not seriously interfere with the goals of the members of that culture. Note, for instance, that Japan is both modern and different from Europe. Thus, cultures will enter the modernization process in different forms and after they are

fully modern they may still be different. This kind of cultural heterogeneity may be very healthy for our planet, and may reduce some of the less desirable consequences of economic development.

THE CONSEQUENCES OF MODERNIZATION

We should first note a number of relatively gross consequences. Modernization appears to be associated with a weakening of traditional social units. Since modernization and urbanization are highly intercorelated, and city life is incompatible with the extended family, we find the nuclear family emerging as the important unit, but also a weakening of individual ties, which sometimes has been found associated with higher incidence of suicide (Krauss and Krauss, 1968). During the transition from traditional to modern social organization, many people are likely to feel left out of the opportunity structure, a condition associated with problem drinking (Jessor *et al.*, 1968; Robbins and Pollnac, 1969), riots (Allen, 1970) and other forms for social disorganization. The creation of large urban centers is associated with a condition which Zimbardo (1969) described as de-individuation. According to his analysis, anonymity, the large size of social units, and diffusion of responsibility are among the antecedents of de-individuation, while irrational, high amplitude, impulsive behaviors are among the consequences. In experiments in which subjects who were either anonymous or not anonymous were asked to shock various kinds of victims, who were confederates of the experimenter, he showed that the anonymous subjects administered more shock to their helpless victims.

Modernization also has the effect of changing the level of aspirations (Lerner, 1958; Dawson, 1969 a). As Diaz-Guerrero (1967) has pointed out, from his comparative studies of Americans and Mexicans, Americans expect life to be great fun and almost invariably feel frustrated; Mexicans expect life to be endured and almost invariably find it more fun than they expected. Morse (1953) has pointed out that satisfaction depends not only on how much a person realizes but also on his aspirations. Thus, satisfaction with life may be negatively correlated with level of aspiration. Unreasonably high aspirations lead to frustrations and a predisposition to aggression. In short, some rates of economic development are likely to lead to low satisfaction and social disorganization. We need to study this question quite carefully.

At the psychological level, the effects of modernization on mental health are still not at all clear. There is a large body of literature, associated with Allport, Fromm, Jahoda, Maslow, Rogers, White and others, which provides normative arguments about the healthy personality. Some of these arguments can actually be translated into measurements that are directly obtainable from subjective culture data. Limitations of time permit only a brief suggestion of how this can be done: The theorists use concepts such as cognitive control (Kelly, 1955), creativity, flexibility, etc. Actually, what they really mean, it seems, is that a person behaves far more under the control of cognitive than emotional, normative or habitual determinants. In the regression analysis which is described above, this means that the behavior of the mentally healthy persons is predictable with

beta weights of the cognitive component that are relatively large, when they are compared with the weights of the other components.

SUMMARY

Modernization appears to involve specific viewpoints reflected in the attitudes, norms, roles and habits of individuals. Previous work has suggested that there is a universal psychological state that can be called modernity, which can be measured with appropriate questions. However, this view of modernization seems to be too simple, and to miss some of the complexities that cultural and situational factors impose on the psychological states which can be described as modern. It was suggested that psycho-physical measurements, such as those associated with the measurement of subjective culture variables, can provide more adequate maps of modernity. With better measurement it is possible to do better studies of the antecedents and consequents of modernization. It was finally suggested that identifying different kinds of modernization may be highly desirable and may lead to a much better understanding of the modernization process.

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